

What is claimed is:

1 1. A dynamic proxy server apparatus for, substituting for one of
2 a plurality of client terminal apparatuses, obtaining a resource
3 from a server apparatus, the dynamic proxy server apparatus
4 comprising:

5 a request receiving means for receiving a plurality of
6 requests from at least one of the plurality of client terminal
7 apparatuses;

8 a divisional request creating means for sequentially
9 creating a plurality of divisional requests from each received
10 request, each divisional request specifying a partial server
11 resource constituting a server resource which is stored in the
12 server apparatus;

13 a request transmitting means for transmitting the
14 created divisional requests to the server apparatus; and

15 a managing means for managing a margin time for each of
16 the received requests, the margin time being a result of
17 subtracting (a) a time required for transmitting data of a given
18 size to the client terminal apparatus, from (b) a time required for
19 receiving the data of the given size from the server apparatus,
20 wherein

21 the divisional request creating means creates the
22 divisional requests so that a resource for a request with the
23 shortest margin time among the received requests is preferentially
24 obtained in accordance with the margin times managed by the

25 managing means.

1 2. The dynamic proxy server apparatus of Claim 1, wherein

2 the managing means further manages wait times which each
3 are a time between an instant when a partial server resource
4 corresponding to a divisional request is obtained from the server
5 apparatus and an instant when the next divisional request is
6 created,

7 the divisional request creating means changes size of
8 the partial server resources in accordance with wait times, and

9 the managing means updates the wait times so that a
10 resource for a request with the shortest margin time is
11 preferentially obtained.

1 3. The dynamic proxy server apparatus of Claim 2, wherein

2 the divisional request creating means increases size of
3 the partial server resources as the wait times decrease, and
4 decreases size of the partial server resources as the wait times
5 increase.

1 4. The dynamic proxy server apparatus of Claim 3, wherein

2 the managing means assigns the wait times to the
3 requests so that the wait times are proportionate to the margin
4 times for the requests.

1 5. The dynamic proxy server apparatus of Claim 4 further
2 comprising:

3 a response receiving means for receiving responses from
4 the server apparatus, the responses being partial server resources
5 constituting a server resource;

6 a buffer storage means for storing the received
7 responses sequentially in a buffer;

8 a divisional response creating means for creating
9 divisional responses sequentially from the responses stored in the
10 buffer, each divisional response being a partial proxy resource
11 constituting a proxy resource which is composed of the responses
12 stored in the buffer; and

13 a response transmitting means for transmitting the
14 divisional responses to the client terminal apparatus, wherein

15 the divisional response creating means creates the
16 divisional responses so that a resource with the longest margin
17 time is preferentially transmitted in accordance with the margin
18 times managed by the managing means.

1 6. The dynamic proxy server apparatus of Claim 5, wherein

2 the divisional response creating means changes size of
3 the partial proxy resources in accordance with wait times, and

4 the managing means updates the wait times so that a
5 resource with the longest margin time is preferentially
6 transmitted.

1 7. The dynamic proxy server apparatus of Claim 6, wherein
2 the divisional response creating means decreases size of
3 the partial proxy resources as the wait times decrease, and
4 increases size of the partial proxy resources as the wait times
5 increase.

1 8. The dynamic proxy server apparatus of Claim 7, wherein
2 the divisional response creating means creates a
3 divisional response when size of a proxy resource is equal to or
4 higher than a threshold value, and when the size is lower than the
5 threshold value, waits for the size to reach the threshold value
6 before creating a divisional response.

1 9. The dynamic proxy server apparatus of Claim 2, wherein
2 the managing means assigns the wait times to the
3 requests so that the wait times are proportionate to the margin
4 times for the requests.

1 10. The dynamic proxy server apparatus of Claim 5, wherein
2 the divisional response creating means creates a
3 divisional response when size of a proxy resource is equal to or
4 higher than a threshold value, and when the size is lower than the
5 threshold value, waits for the size to reach the threshold value
6 before creating a divisional response.

1 11. The dynamic proxy server apparatus of Claim 1 further
2 comprising:

3 a response receiving means for receiving responses from
4 the server apparatus, the responses being partial server resources
5 constituting a server resource;

6 a buffer storage means for storing the received
7 responses sequentially in a buffer;

8 a divisional response creating means for creating
9 divisional responses sequentially from the responses stored in the
10 buffer, each divisional response being a partial proxy resource
11 constituting a proxy resource which is composed of the responses
12 stored in the buffer; and

13 a response transmitting means for transmitting the
14 divisional responses to the client terminal apparatus, wherein

15 the divisional response creating means creates the
16 divisional responses so that a resource with the longest margin
17 time is preferentially transmitted in accordance with the margin
18 times managed by the managing means.

1 12. The dynamic proxy server apparatus of Claim 11, wherein

2 the divisional response creating means creates a
3 divisional response when size of a proxy resource is equal to or
4 higher than a threshold value, and when the size is lower than the
5 threshold value, waits for the size to reach the threshold value

6 before creating a divisional response.

1 13. A dynamic proxy server apparatus for, substituting for one of
2 a plurality of client terminal apparatuses, obtaining a resource
3 from a server apparatus, the dynamic proxy server apparatus
4 comprising:

5 a response receiving means for receiving responses from
6 the server apparatus, the responses being partial server resources
7 constituting a server resource;

8 a buffer storage means for storing the received
9 responses sequentially in a buffer;

10 a divisional response creating means for creating
11 divisional responses sequentially from the responses stored in the
12 buffer, each divisional response being a partial proxy resource
13 constituting a proxy resource which is composed of the responses
14 stored in the buffer; and

15 a response transmitting means for transmitting the
16 divisional responses to the client terminal apparatus, wherein

17 the divisional response creating means creates a
18 divisional response when size of a proxy resource is equal to or
19 higher than a threshold value, and when the size is lower than the
20 threshold value, waits for the size to reach the threshold value
21 before creating a divisional response.

1 14. A dynamic proxy service program for, substituting for one of

2 a plurality of client terminal apparatuses, obtaining a resource
3 from a server apparatus, the dynamic proxy service program
4 comprising:

5 a request receiving step for receiving a plurality of
6 requests from at least one of the plurality of client terminal
7 apparatuses;

8 a divisional request creating step for sequentially
9 creating a plurality of divisional requests from each received
10 request, each divisional request specifying a partial server
11 resource constituting a server resource which is stored in the
12 server apparatus;

13 a request transmitting step for transmitting the created
14 divisional requests to the server apparatus; and

15 a managing step for managing a margin time for each of
16 the received requests, the margin time being a result of
17 subtracting (a) a time required for transmitting data of a given
18 size to the client terminal apparatus, from (b) a time required for
19 receiving the data of the given size from the server apparatus,
20 wherein

21 the divisional request creating step creates the
22 divisional requests so that a resource for a request with the
23 shortest margin time among the received requests is preferentially
24 obtained in accordance with the margin times managed by the
25 managing step.

1 15. The dynamic proxy service program of Claim 14, wherein
2 the managing step further manages wait times which each
3 are a time between an instant when a partial server resource
4 corresponding to a divisional request is obtained from the server
5 apparatus and an instant when the next divisional request is
6 created,
7 the divisional request creating step changes size of the
8 partial server resources in accordance with wait times, and
9 the managing step updates the wait times so that a
10 resource for a request with the shortest margin time is
11 preferentially obtained.

1 16. The dynamic proxy service program of Claim 15, wherein
2 the divisional request creating step increases size of
3 the partial server resources as the wait times decrease, and
4 decreases size of the partial server resources as the wait times
5 increase.

1 17. The dynamic proxy service program of Claim 16, wherein
2 the managing step assigns the wait times to the requests
3 so that the wait times are proportionate to the margin times for
4 the requests.

1 18. The dynamic proxy service program of Claim 17 further
2 comprising:

3 a response receiving step for receiving responses from
4 the server apparatus, the responses being partial server resources
5 constituting a server resource;

6 a buffer storage step for storing the received responses
7 sequentially in a buffer;

8 a divisional response creating step for creating
9 divisional responses sequentially from the responses stored in the
10 buffer, each divisional response being a partial proxy resource
11 constituting a proxy resource which is composed of the responses
12 stored in the buffer; and

13 a response transmitting step for transmitting the
14 divisional responses to the client terminal apparatus, wherein
15 the divisional response creating step creates the
16 divisional responses so that a resource with the longest margin
17 time is preferentially transmitted in accordance with the margin
18 times managed by the managing step.

1 19. The dynamic proxy service program of Claim 18, wherein
2 the divisional response creating step changes size of
3 the partial proxy resources in accordance with wait times, and
4 the managing step updates the wait times so that a
5 resource with the longest margin time is preferentially
6 transmitted.

1 20. The dynamic proxy service program of Claim 19, wherein

2 the divisional response creating step decreases size of
3 the proxy resources as the wait times decrease, and increases size
4 of the proxy resources as the wait times increase.

1 21. The dynamic proxy service program of Claim 20, wherein
2 the divisional response creating step creates a
3 divisional response when size of a proxy resource is equal to or
4 higher than a threshold value, and when the size is lower than the
5 threshold value, waits for the size to reach the threshold value
6 before creating a divisional response.

1 22. The dynamic proxy service program of Claim 15, wherein
2 the managing step assigns the wait times to the requests
3 so that the wait times are proportionate to the margin times for
4 the requests.

1 23. The dynamic proxy service program of Claim 18, wherein
2 the divisional response creating step creates a
3 divisional response when size of a proxy resource is equal to or
4 higher than a threshold value, and when the size is lower than the
5 threshold value, waits for the size to reach the threshold value
6 before creating a divisional response.

1 24. The dynamic proxy service program of Claim 14 further
2 comprising:

3. a response receiving step for receiving responses from
4 the server apparatus, the responses being partial server resources
5 constituting a server resource;

6 a buffer storage step for storing the received responses
7 sequentially in a buffer;

8 a divisional response creating step for creating
9 divisional responses sequentially from the responses stored in the
10 buffer, each divisional response being a partial proxy resource
11 constituting a proxy resource which is composed of the responses
12 stored in the buffer; and

13 a response transmitting step for transmitting the
14 divisional responses to the client terminal apparatus, wherein

15 the divisional response creating step creates the
16 divisional responses so that a resource with the longest margin
17 time is preferentially transmitted in accordance with the margin
18 times managed by the managing step.

1 25. The dynamic proxy service program of Claim 24, wherein

2 the divisional response creating step creates a
3 divisional response when size of a proxy resource is equal to or
4 higher than a threshold value, and when the size is lower than the
5 threshold value, waits for the size to reach the threshold value
6 before creating a divisional response.

1 26. A dynamic proxy service program for, substituting for one of

2 a plurality of client terminal apparatuses, obtaining a resource
3 from a server apparatus, the dynamic proxy service program
4 comprising:

5 a response receiving step for receiving responses from
6 the server apparatus, the responses being partial server resources
7 constituting a server resource;

8 a buffer storage step for storing the received responses
9 sequentially in a buffer;

10 a divisional response creating step for creating
11 divisional responses sequentially from the responses stored in the
12 buffer, each divisional response being a partial proxy resource
13 constituting a proxy resource which is composed of the responses
14 stored in the buffer; and

15 a response transmitting step for transmitting the
16 divisional responses to the client terminal apparatus, wherein

17 the divisional response creating step creates a
18 divisional response when size of a proxy resource is equal to or
19 higher than a threshold value, and when the size is lower than the
20 threshold value, waits for the size to reach the threshold value
21 before creating a divisional response.

1 27. A computer readable recording medium recording a dynamic proxy
2 service program for, substituting for one of a plurality of client
3 terminal apparatuses, obtaining a resource from a server apparatus,
4 the dynamic proxy service program comprising:

5 a request receiving step for receiving a plurality of
6 requests from at least one of the plurality of client terminal
7 apparatuses;

8 a divisional request creating step for sequentially
9 creating a plurality of divisional requests from each received
10 request, each divisional request specifying a partial server
11 resource constituting a server resource which is stored in the
12 server apparatus;

13 a request transmitting step for transmitting the created
14 divisional requests to the server apparatus; and

15 a managing step for managing a margin time for each of
16 the received requests, the margin time being a result of
17 subtracting (a) a time required for transmitting data of a given
18 size to the client terminal apparatus, from (b) a time required for
19 receiving the data of the given size from the server apparatus,
20 wherein

21 the divisional request creating step creates the
22 divisional requests so that a resource for a request with the
23 shortest margin time among the received requests is preferentially
24 obtained in accordance with the margin times managed by the
25 managing step.

1 28. The recording medium of Claim 27, wherein

2 the managing step further manages wait times which each
3 are a time between an instant when a partial server resource

4 corresponding to a divisional request is obtained from the server
5 apparatus and an instant when the next divisional request is
6 created,

7 the divisional request creating step changes size of the
8 partial server resources in accordance with wait times, and

9 the managing step updates the wait times so that a
10 resource for a request with the shortest margin time is
11 preferentially obtained.

1 29. The recording medium of Claim 28, wherein

2 the divisional request creating step increases size of
3 the partial server resources as the wait times decrease, and
4 decreases size of the partial server resources as the wait times
5 increase.

1 30. The recording medium of Claim 29, wherein

2 the managing step assigns the wait times to the requests
3 so that the wait times are proportionate to the margin times for
4 the requests.

1 31. The recording medium of Claim 30 further comprising:

2 a response receiving step for receiving responses from
3 the server apparatus, the responses being partial server resources
4 constituting a server resource;

5 a buffer storage step for storing the received responses

6 sequentially in a buffer;
7 a divisional response creating step for creating
8 divisional responses sequentially from the responses stored in the
9 buffer, each divisional response being a partial proxy resource
10 constituting a proxy resource which is composed of the responses
11 stored in the buffer; and
12 a response transmitting step for transmitting the
13 divisional responses to the client terminal apparatus, wherein
14 the divisional response creating step creates the
15 divisional responses so that a resource with the longest margin
16 time is preferentially transmitted in accordance with the margin
17 times managed by the managing step.

1 32. The recording medium of Claim 31, wherein
2 the divisional response creating step changes size of
3 the partial proxy resources in accordance with wait times, and
4 the managing step updates the wait times so that a
5 resource with the longest margin time is preferentially
6 transmitted.

1 33. The recording medium of Claim 32, wherein
2 the divisional response creating step decreases size of
3 the proxy resources as the wait times decrease, and increases size
4 of the proxy resources as the wait times increase.

1 34. The recording medium of Claim 33, wherein
2 the divisional response creating step creates a
3 divisional response when size of a proxy resource is equal to or
4 higher than a threshold value, and when the size is lower than the
5 threshold value, waits for the size to reach the threshold value
6 before creating a divisional response.

1 35. The recording medium of Claim 28, wherein
2 the managing step assigns the wait times to the requests
3 so that the wait times are proportionate to the margin times for
4 the requests.

1 36. The recording medium of Claim 31, wherein
2 the divisional response creating step creates a
3 divisional response when size of a proxy resource is equal to or
4 higher than a threshold value, and when the size is lower than the
5 threshold value, waits for the size to reach the threshold value
6 before creating a divisional response.

1 37. The recording medium of Claim 27 further comprising:
2 a response receiving step for receiving responses from
3 the server apparatus, the responses being partial server resources
4 constituting a server resource;
5 a buffer storage step for storing the received responses
6 sequentially in a buffer;

7 a divisional response creating step for creating
8 divisional responses sequentially from the responses stored in the
9 buffer, each divisional response being a partial proxy resource
10 constituting a proxy resource which is composed of the responses
11 stored in the buffer; and

12 a response transmitting step for transmitting the
13 divisional responses to the client terminal apparatus, wherein

14 the divisional response creating step creates the
15 divisional responses so that a resource with the longest margin
16 time is preferentially transmitted in accordance with the margin
17 times managed by the managing step.

1 38. The recording medium of Claim 37, wherein

2 the divisional response creating step creates a
3 divisional response when size of a proxy resource is equal to or
4 higher than a threshold value, and when the size is lower than the
5 threshold value, waits for the size to reach the threshold value
6 before creating a divisional response.

1 39. A computer readable recording medium recording a dynamic proxy
2 service program for, substituting for one of a plurality of client
3 terminal apparatuses, obtaining a resource from a server apparatus,
4 the dynamic proxy service program comprising:

5 a response receiving step for receiving responses from
6 the server apparatus, the responses being partial server resources

7 constituting a server resource;

8 a buffer storage step for storing the received responses

9 sequentially in a buffer;

10 a divisional response creating step for creating

11 divisional responses sequentially from the responses stored in the

12 buffer, each divisional response being a partial proxy resource

13 constituting a proxy resource which is composed of the responses

14 stored in the buffer; and

15 a response transmitting step for transmitting the

16 divisional responses to the client terminal apparatus, wherein

17 the divisional response creating step creates a

18 divisional response when size of a proxy resource is equal to or

19 higher than a threshold value, and when the size is lower than the

20 threshold value, waits for the size to reach the threshold value

21 before creating a divisional response.